

Listing of Claims

Please amend the claims by replacing all prior versions of the claims with the following listing of claims:

1. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) a cap-labeled mRNA substrate.
2. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.
3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 2 wherein said HeLa cell cytoplasmic extract is prepared by dialysis of said extract containing 10% glycerol.
4. (cancelled)
5. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 2 wherein said S100 cell cytoplasmic extract comprises a 100,000 x g, 1 hour supernatant from a HeLa cell lysate.
6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said methylated cap analog is ^{7me}GpppG or ^{7me}GTP.
- 7 - 8. (cancelled)
9. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

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10. (currently amended) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.
11. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate comprises poly(A) or at least one RNA element.
12. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 wherein said RNA element is an AU-rich element.
13. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 wherein said RNA element is a pyrimidine-rich element.
- 14 - 16. (cancelled)
17. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) cap-labeled mRNA substrate.
18. (cancelled)
19. (previously presented) The kit of claim 17 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

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20. (currently amended) The kit of claim 17 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.
- 21 - 26. (cancelled)
27. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 further comprising means for sequestering proteins that bind to poly(A).
28. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 further comprising means for stimulating decapping of the cap-labeled mRNA substrate wherein the cap-labeled mRNA substrate comprises poly(A).
29. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 further comprising a cold poly(A) competitor RNA.
30. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 12 further comprising means for reducing decapping of the cap-labeled mRNA substrate.
31. (currently amended) The mammalian *in vitro* mRNA decapping system of claim 12 further comprising an AU-rich element competitor RNA.
32. (previously presented) The kit of claim 17 wherein the cap-labeled mRNA substrate comprises poly(A).
33. (previously presented) The kit of claim 32 further comprising means for stimulating decapping the cap labeled mRNA substrate.

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34. (previously presented) The kit of claim 32 further comprising a cold poly(A) competitor RNA.
35. (previously presented) The kit of claim 17 wherein the cap-labeled mRNA substrate comprises an RNA element.
36. (previously presented) The kit of claim 35 wherein the RNA element is an AU-rich element.
37. (currently amended) The kit of claim 36 ~~furthering~~ further comprising means for reducing decapping the cap-labeled mRNA substrate.
38. (previously presented) The kit of claim 36 further comprising an AU-rich element competitor RNA.
39. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a cap-labeled mRNA substrate; and
 - c) means for decapping the cap-labeled mRNA substrate.
40. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a cap-labeled mRNA substrate; and
 - c) means for decapping the cap-labeled mRNA substrate.
41. (previously presented) The kit of claim 17 wherein the polysome-free HeLa cell cytoplasmic extract is HeLa S100 cell cytoplasmic extract.
42. (previously presented) The kit of claim 39 wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.

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43. (previously presented) The kit of claim 40 wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cytoplasmic extract.